Use of Alternate Path WAN Circuits at Fermilab

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Abstract:

Fermilab hosts the US Tier-1 Center for the LHC/CMS experiment. In preparation for the startup of CMS, the Laboratory has established high bandwidth, End-to-End (E2E) circuits with a number of US-CMS Tier2 sites, as well as other research facilities involved in the collaboration. These circuits provide preferred network paths for movement of bulk, high volume CMS data, and represent a departure from the traditional approach of utilizing the general R&E network infrastructure for movement of science data. Currently, all circuits are statically configured, and are based on a variety of underlying network technologies. These circuits are presumed to provide more predictable wide-area data movement performance, as well as avoid traffic contention concerns on general use R&E network links. The circuits also add significant complexity and effort for the Laboratory's wide area network support.

This presentation will discuss Fermilab's experiences with deploying, managing, and utilizing E2E circuits as preferred network paths in parallel with the general IP R&E network infrastructure. Alternate path routing techniques, monitoring issues, troubleshooting, and failover concerns will be covered.   Issues of scalability and evolution toward dynamic circuits will also be discussed.